UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,411	06/30/2003	Byung-sun Choi	Q73220	8067

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EXAMINER
CATHEY II, PATRICK H

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 June 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-36</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-4, 6-10, 12-14, 16-19, 21-24, 26-30 and 32-36</u> is/are rejected.

7)☒ Claim(s) <u>5,11,15,20,25 and 31</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>28 June 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

       1.☒ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 6/28/2005 have been fully considered but they are not persuasive. The new target number of bits determined by the rate control processor being applied to the current program frame or picture is inherently implemented in motion estimation. The applicant agrees that the reference does teach determining from a previous program frame which is also in the claimed subject matter. The additional of claiming the current program is again inherently implemented in any motion estimation design.

The Wang et al. reference also teaches the decoding of the encoded process in this invention. Following the encoding of the complexity information, the data is transmitted to a demultiplexer that decodes the complexity information data (Column 6, line 41 to Column 7, line 10; See also Figures 1 and 10).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Allowable Subject Matter

Claim's 5, 11, 15, 20, 25 and 31 are objected to as being dependent upon a

rejected base claim, but would be allowable if rewritten in independent form including all

of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim's 1-4, 6-10, 12-14, 16-19, 21-24, 26-30 and 32-34 are rejected under 35

U.S.C. 103(a) as being unpatentable over Wang et al. (US 6,167,084).

As for Claim's 1, 12, 17, 22, 32 and 34, Wang et al. teaches a video decoding

unit within a transcoder which receives a compressed bitstream and performs decoding

in order to output decoded pictures to the encoder (Column 7, line 57 to Column 8, line

24; See also Figures 4 and 5), a complexity estimation unit which estimates complexity

of a current picture among the decoded pictures to encode the current picture and

provides complexity information of the current picture (Column 8, line 54 to Column 9,

line 15; See also Figure 6), a target bit-allocation unit which performs desired bit-

allocation using the complexity information of the current picture (Column 9, lines 28-

37), a bit-rate control unit which controls bit-rate using bit-allocation information and

state information from memory, which outputs an encoded bitstream (Column 8, line 54

to Column 9, line 15; See also Figure 6) and a video encoding unit which encodes the

decoded pictures on the basis of the bit-allocation and state information of the bit-rate

control unit (Column 9, lines 1-14). Wang et al. fails to specifically teach supplying the

complexity estimation unit with a decoded signal before the encoding but does teach the

video decoder within the transcoder (Figures 4 and 5). Wang et al. also teach that

following the encoding of the complexity information, the data is transmitted to a

demultiplexer that decodes the complexity information data (Column 6, line 41 to

Column 7, line 10; See also Figures 1 and 10). Therefore it would have been obvious to

one of ordinary skill to have the complexity estimation unit use the decoded signal to

estimate the complexity as opposed to the encoded signal because it would have only

been the difference of when in the process the video signal was sent to the complexity

estimation unit. (Official Notice)

As for Claim 2, Wang et al. teach comprising an output buffer which stores and

outputs pictures encoded by the video encoding unit (Column 8, lines 34-36; See also

Figure 6), where the state information of the output buffer is provided to the bit-rate

control unit (Column 8, 41-42; See also Figure 6).

As for Claim's 3, 10, 13, 18, 23 and 30, Wang et al. teach where the compressed

bitstream input to the video decoding unit is compressed in MPEG format (Column 7,

lines 57-63).

As for Claim's 4, 9, 14, 19, 24, 29, 33, 35 and 36, many of the limitations have

been addressed in the above rejections. In addition, Wang et al. teach where the

complexity estimation unit calculates complexity of a picture to be currently encoded,

using complexity of decoded previous and current pictures output from the video decoding unit and complexity of an encoded previous picture output from the video encoding unit (Column 13, lines 43-48). Since complexity is based on Q (Equation 4 in Column 13, lines 42-50), quantization, note that Q can be an average, thus C, complexity, is based on previous encoded and decoded frames. This shows that the previous encoded and decoded frames may be used to measure the complexity.

As for Claim's 6, 7, 26 and 27, Wang et al. teach where the target bit-allocation unit increases a number of bits to be allocated for the current picture if complexity of an estimated current picture is large, and decreases number of bits to be allocated for the current picture if the complexity of the estimated current picture is small (Column 8, line 54 to Column 9, line 15).

As for Claim's 8, 16, 21 and 28, Wang et al. teach calculating the number of bits T1 to be allocated for a current I-picture using the complexity of the current picture where C denotes the complexity of the picture and K denotes the weighting factor for each of the picture types (See Equations 4 and 8-14 in Columns 11-13).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Patrick H. Cathey II whose telephone number is

(571)272-7326. The examiner can normally be reached on M-F 7:30 to 5:00 (Every

other friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on (571)272-7418. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Patrick H. Cathey II
Examiner
Art Unit 2613

PHC

MEHRDAD DASTOURI
SUPERVISORY PATENT EXAMINER
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